

Wireless Router Setup Manual



NETGEAR®

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August 2008
208-10149-04
v1.0

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Getting to Know Your Wireless Router

Congratulations on your purchase of a NETGEAR® high-speed wireless router, the RangeMax™ Wireless-N Gigabit Router WNR3500.

Before you begin installing your router, check the package contents (see [“Unpacking Your New Wireless Router” on page 1](#)). Become familiar with the front and back panels of your router—especially the LEDs—and the important information on the router label (see [“Hardware Features” on page 3](#)). Then, read the section on [“Positioning Your Wireless Router” on page 5](#) to ensure that you have selected the best location to install your router.

Unpacking Your New Wireless Router

Your product package should contain the following items:

- The wireless router
- A snap-on stand for your wireless router
- An AC power adapter (varies by region)
- A yellow Ethernet cable
- The *Resource CD*, which includes:
 - The Smart Wizard Installation Assistant (*Autorun.exe*)
 - A PDF version of this manual
 - A link to the online *User Manual*
- Warranty and Support Information cards

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

To prepare your router for installation:

1. Carefully peel off the protective film covering both sides of your router.

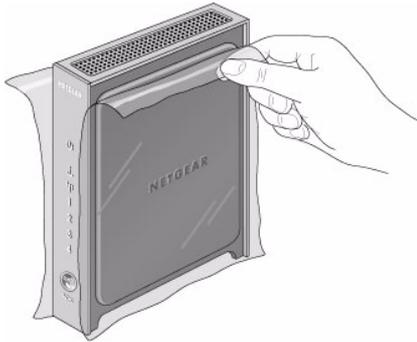


Figure 1

2. Set up your wireless router by inserting the tabs of the stand (supplied with your router) into the slots on the bottom of your router as shown in [Figure 2](#). Then, remove the protective film covering the front panel of the router.

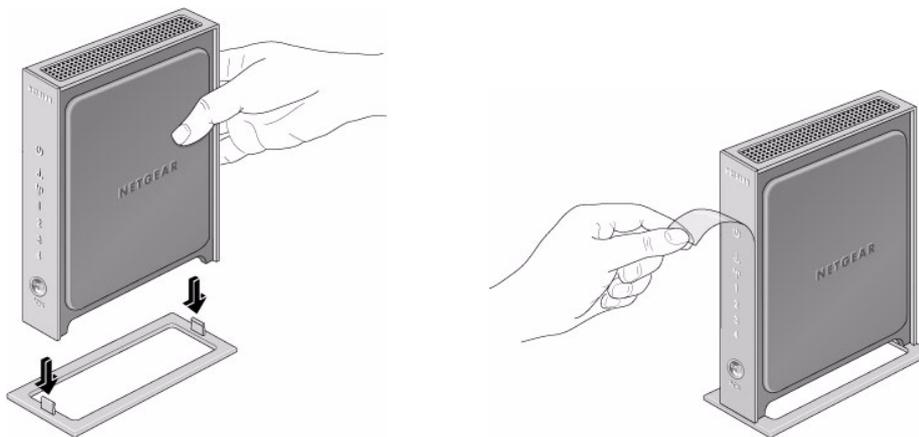


Figure 2

3. Place your router in a suitable area for installation (near an AC power outlet and accessible to the Ethernet cables for your wired computers).



To ensure proper heat dissipation and for router stability, it is important that you connect the stand and place your router in an upright position.

Hardware Features

Before you install and connect your router, take a moment to become familiar with the front and back panels of the router—especially the LEDs on the front panel.

Front Panel

You can use the LEDs on the front of the router to verify various conditions.

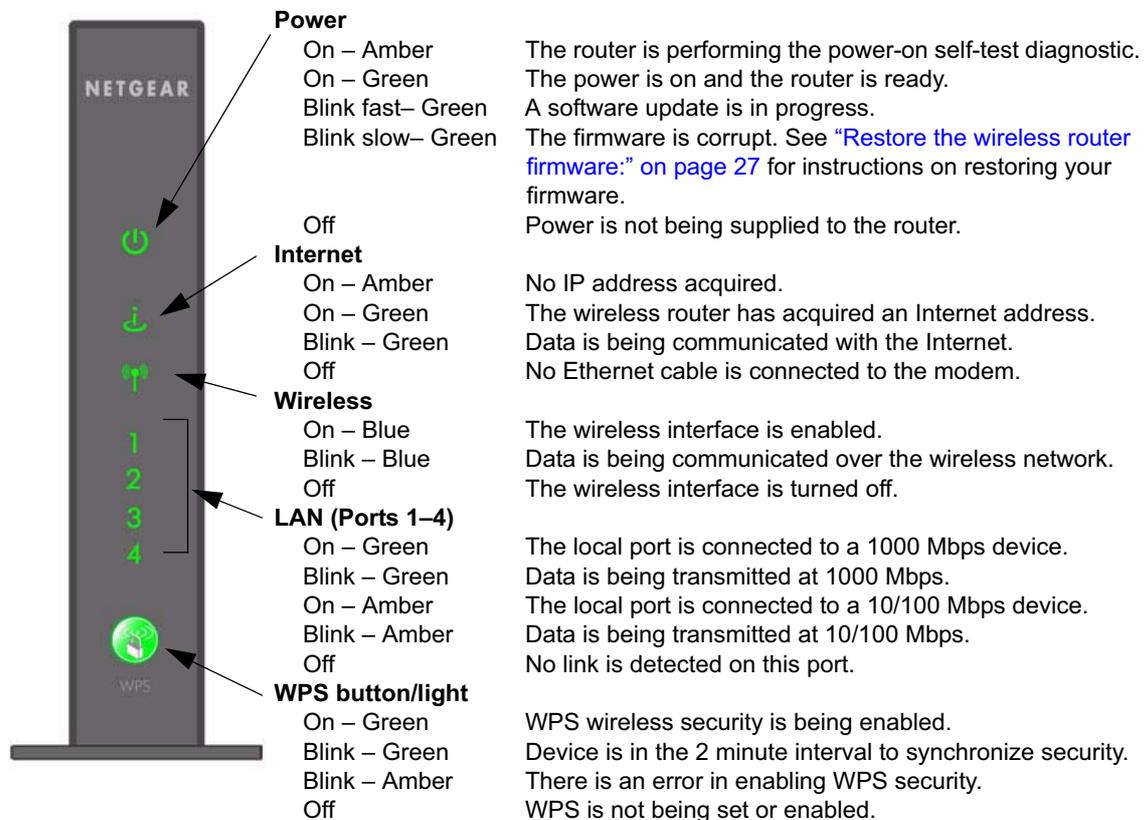


Figure 3

Back Panel

Figure 4 describes the port connections on the back panel of the wireless router.

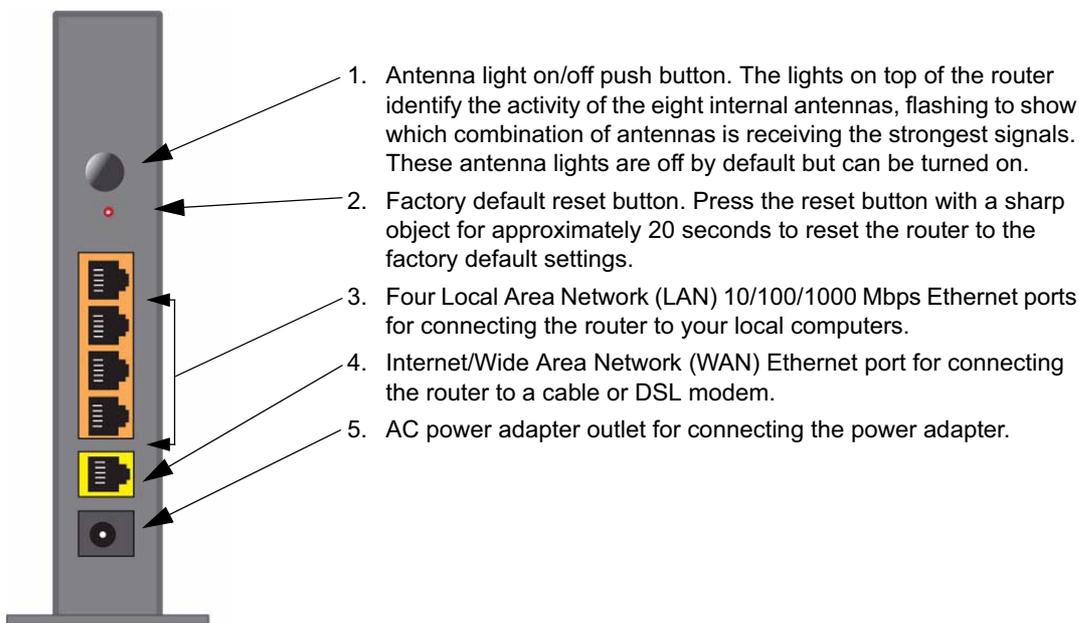


Figure 4

Router Label

The label on the back of the wireless router shows the router's MAC address, serial number, security PIN, and factory default login information.

The ports on the router are color-coded to distinguish your Internet port from the other four ports that connect to the wired computer(s) on your LAN.

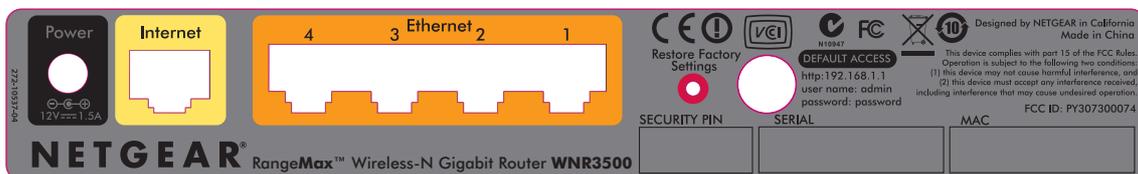


Figure 5

Positioning Your Wireless Router

The wireless router lets you access your network from virtually anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection can vary significantly depending on the physical placement of your router. For example, the thickness and number of walls the wireless signal must pass through may limit the range. For best results, place your router:

- Near the center of the area where your computers and other devices will operate, preferably within line of sight to your wireless devices.
- Accessible to an AC power outlet and near Ethernet cables for wired computers.
- In an elevated location such as a high shelf, keeping the number of walls and ceilings between the wireless router and your other devices to a minimum.
- Away from electrical devices which are potential sources of interference, such as ceiling fans, home security systems, microwaves, or the base for a cordless phone.
- Away from any large metal surfaces, such as a solid metal door or aluminum studs. Large expanses of other materials such as glass, insulated walls, fish tanks, mirrors, brick, and concrete can also affect your wireless signal.



Failure to follow these guidelines can result in significant performance degradation or an inability to wirelessly connect to the Internet.

Installing Your Wireless Router

To help you set up your router and get on the Internet quickly, the *Resource CD* contains a Smart Wizard™. The Smart Wizard walks you through the steps required to connect your router, modem, and PC(s); configure your wireless settings; and enable wireless security for your network. When you have finished, you will be Internet ready!



If you have a Macintosh or Linux system, you need to use the manual installation method (see “[Installing Your Wireless Router Manually \(Advanced, Mac, and Linux Users\)](#)” on page 9).

You can set up your wireless router using one of two methods:

- **Smart Wizard Setup:** The Smart Wizard setup is available on your *Resource CD*. See , “[Installing Your Wireless Router Using Smart Wizard](#)” to use the Smart Wizard.

- This is the easiest option. The wizard guides you through the setup process. It automates many of the steps and verifies that the steps have been successfully completed.
- The Smart Wizard requires a PC running Microsoft Windows.



Before running the Smart Wizard on a corporate PC to set up your home router, check with your company's network support staff. Corporate network settings or Virtual Private Network (VPN) client software may conflict with the default settings of a home router. If you are unsure about whether there might be a conflict, use a different computer.

- **Manual Setup:** If you cannot or prefer not to use the Smart Wizard, see [“Installing Your Wireless Router Manually \(Advanced, Mac, and Linux Users\)”](#) on page 9. For example, if you are connecting to a Macintosh, are using a Linux operating system, or are technically knowledgeable, select this option. If you choose to use this option and install your router manually, for best results, install and set up your router in this order:
 1. Install and connect your wireless router to your network (see [“Connecting Your Wireless Router”](#) on page 9).
 2. Set up your wireless router for Internet access (see [“Setting Up Your Router for Internet Access”](#) on page 13).
 3. Configure your wireless network and select wireless security settings to protect your wireless network (see [“Configuring Your Wireless Settings and Security Options”](#) on page 19).

Updating Your Router Firmware

NETGEAR is always improving the operability and features included with your router. To make it easy for you to receive the best, most up-to-date features of your router, NETGEAR provides a variety of methods for updating your product.

- The Smart Wizard installation assistant lets you check for and install updates as part of the setup activity.
- The router includes an update feature that lets you check for and install updates. You must be logged in to the router to use this feature.

These options are discussed later in [“Restoring the Default Password and Configuration”](#) on page 36.

Installing Your Wireless Router Using Smart Wizard

Prepare the following before you set up your Product Family:

- Internet service.
- The configuration information your Internet Service Provider (ISP) gave you. Depending on how your Internet account was set up, you might need one or more of these settings for the wireless router to access the Internet:
 - Host and domain names
 - Internet login name and password (frequently an e-mail address and password)
 - Domain Name Server (DNS) addresses
 - Fixed or static IP address

Your ISP should have provided you with all the information needed to connect to the Internet. If you cannot locate this information, you can ask your ISP to provide it.

- For cable modem service, use the computer you first used to set up your Internet service.

The NETGEAR Smart Wizard takes you through the procedure to connect your router and PC(s). It then helps you to configure your wireless settings and enable wireless security for your network. The Smart Wizard guides you through the setup process by automating many of the steps. At each step in the setup process, the Smart Wizard checks to ensure that the steps you perform are successfully completed.

The wizard set up process takes about 20 minutes to complete.

To install your router using the Smart Wizard:

1. Insert the *Resource CD* into your Windows PC. The CD automatically starts and detects the language that you are using on your PC. Accept the language option, or change to a different language.



If the CD does not automatically start, browse the CD and double-click . *Autorun.exe*. Be sure to double-click the Autorun file that begins with an uppercase A.

2. When the Welcome screen appears, click **Setup** to start the Smart Wizard. Follow the instructions and prompts to complete the installation.

The Smart Wizard guides you through installing your router, connecting your router to the Internet, configuring your wireless network settings, and selecting the optimum security protection for your network. If you choose not to select a security option during installation, you can always access the router's main menu later to select a security option (see [“Setting Your SSID and Wireless Security Manually” on page 19](#) or [“Using Push 'N' Connect \(WPS\) to Configure Your Wireless Network” on page 21](#)).



To ensure optimum performance of your high-speed wireless router, the wireless adapter card for each computer in your network should support the same technology as your router (see the online *User Manual* for more information).

The Smart Wizard places a *Router_Setup.html* file containing your settings on your computer's desktop, so you can conveniently view the settings at any time. It also places the *Router login*  shortcut on the desktop for you to access the router's main menu.

You are now connected to the Internet!

After connecting to the Internet, you can:

- Log in to the router and check for new firmware. Refer to the bottom label for the default login information, or see the steps in [“Accessing Your Router After Installation and Checking for New Firmware” on page 19](#).
- Set up additional wireless computers in your network for Internet access (see [“Configuring Your Wireless Settings and Security Options” on page 21](#)).

For advanced features not covered in this manual, see the *User Manual* on your *Resource CD*. A link to the online *User Manual* also is available from the router main menu.



The factory default state is restored when you use the restore factory settings button. See [“Restoring the Default Password and Configuration” on page 36](#) for more information about this feature.

Installing Your Wireless Router Manually (Advanced, Mac, and Linux Users)

Before installing and connecting your router manually, review the list below and make sure that you have all of the necessary information.

- Internet service connection through an Internet Service Provider (ISP).
- The configuration information your ISP gave you. Depending on how your Internet account was set up, you might need the following information to set up your wireless router and access the Internet:
 - Host and Domain Name
 - Internet Login Name and Password (frequently an email address and password)
 - Domain Name Server (DNS) Addresses
 - Fixed or Static IP Address

Your ISP should have provided you with all the information needed to connect to the Internet. If you cannot locate this information, ask your ISP.

- If you have cable modem service, make sure that you are using the same computer on which you first set up your Internet account.

If you have not already done so:

- Check the package contents of your router to ensure that it is complete (see [“Unpacking Your New Wireless Router” on page 1](#)”).
- Select an optimum location for your wireless router after reviewing the guidelines presented in [“Positioning Your Wireless Router” on page 5](#).”

Connecting Your Wireless Router

Before you install your wireless router, make sure that the Internet Protocol (TCP/IP) Property settings on your computer are set to “automatically obtain an IP address” using DHCP and “Obtain DNS server address automatically.” You can check these settings by looking at the TCP/IP Properties of your Internal Network Connections, which are accessible through the Control Panel

of your computer. If you are unsure about this, refer to the documentation for your computer or see the link to TCP/IP Addressing in [“Related Documents”](#) on page 39.



If you are replacing an existing router, disconnect it completely from your network and set it aside before starting to install your new router.

There are two steps to setting up your wireless router:

1. Connect the Product Family to the ADSL or cable modem, and connect a computer to the Product Family.
2. Configure the Product Family to use your Internet service.

To connect your wireless router:

1. Connect the wireless router, the computer, and the modem.
 - a. Turn off your computer.
 - b. Turn off and unplug the cable or ADSL broadband modem.
 - c. Locate the Ethernet cable (1) that connects your computer to the modem.

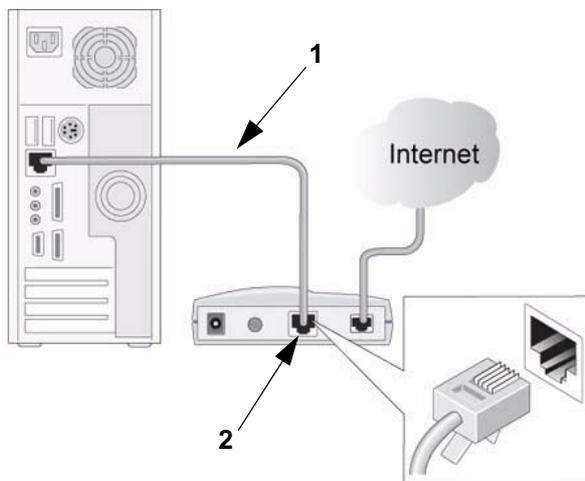


Figure 6

2. Disconnect the cable at the modem end only (2). You will connect it to the router later.

3. Locate the Ethernet cable that came with your NETGEAR product. Securely insert that Ethernet cable into your modem and into the Internet port of the wireless router (3). The Ethernet cable and the Internet port label are color coded.

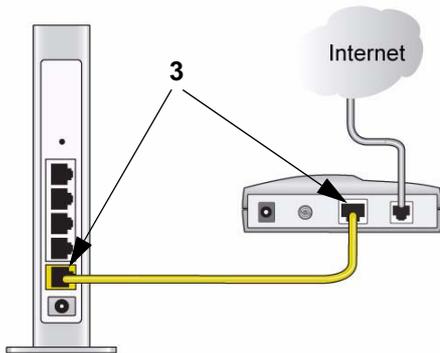


Figure 7

4. Locate the cable you removed from the modem in step 2. Securely insert that cable (4) into a LAN port on the router such as LAN port 1.

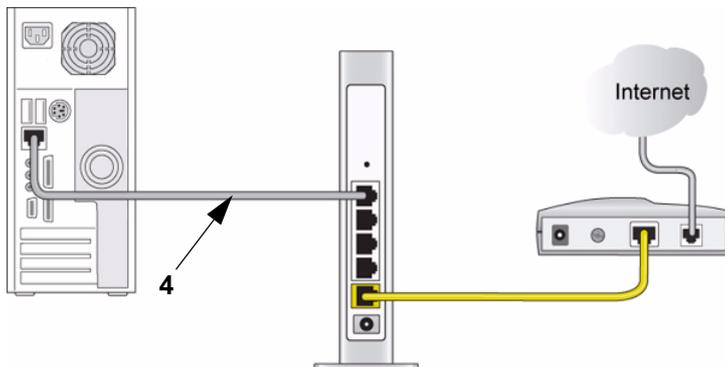


Figure 8

Your network cables are connected, and you are ready to start your network. It is important that you start your network in the correct sequence.

To start your network in the correct sequence:



Failure to start or restart your network in the correct sequence could prevent you from accessing the Internet.

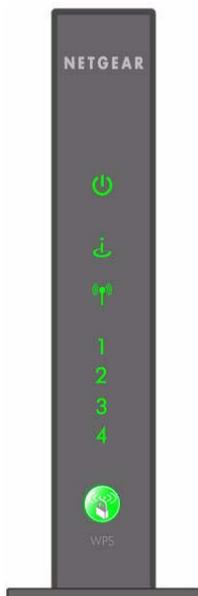
1. First, plug in and turn on the cable or DSL modem. Wait 2 minutes.
2. Now, plug the power cord into your wireless router and into a power outlet. Wait 1 minute.
3. Last, turn on your computer. It might take several minutes for your router to establish a connection with your computer and your Internet provider.



For DSL customers, if software logs you in to the Internet, *do not* run that software. You might need to go to the Internet Explorer Tools menu, select Internet Options, and then click the Connections tab, where you can select **Never dial a connection**.

Verifying Your Connection

Verify that your router is connected correctly by checking the wireless router status lights (as illustrated in [Figure 9](#)).



- **Power.** The power light  should turn solid green. If it does not, see [“Checking Basic Router Functions”](#) on page 26.
- **Wireless.** The wireless light  should be lit after turning on the Product Family.
- **Internet.** The Internet port light  should be lit. If it is not, make sure the Ethernet cable is securely attached to the wireless router Internet port and the modem, and that the modem is powered on.
- **LAN.** A LAN light  should be lit for each connected computer on your network. Green indicates that your computer is communicating at 1000 Mbps; amber indicates communication at 10/100 Mbps. If a LAN light is not lit for each connected Ethernet cable, make sure that the Ethernet cable from the computer to the router is securely attached at both ends, and that the computer is turned on.

WPS. The WPS button/light will not be lit unless you are enabling WPS security.

Figure 9

Setting Up Your Router for Internet Access

When configuring your wireless router manually, you must log in to your wireless router to set it up initially and to make any changes to your wireless router’s settings later.



The factory default state is reset when you use the Restore Factory Settings button. See [“Restoring the Default Password and Configuration”](#) on page 36 for more information.

To access your router:

1. Connect to the router by typing **http://www.routerlogin.net** in the address field of your browser, and then pressing **Enter**.



Figure 10

 Connect to the wireless router by typing any one of these three URLs in the address field of your browser, then pressing Enter:
http://www.routerlogin.net
http://www.routerlogin.com
http://192.168.1.1

A login window similar to the one in the following figure opens.



Figure 11

2. For security reasons, the router has its own user name and password. When prompted, enter **admin** for the router user name and **password** for the router password, both in lowercase letters.

 The router user name and password are not the same as any other user name or password you might use to log in to your Internet connection.

The Firmware Upgrade Assistant screen displays.

3. Click **Yes** to check for new firmware (recommended). The router will automatically check the NETGEAR database for a new firmware image file. If no new firmware version is available, the message “No New Firmware Version Available” will display. (If you select “No”, you can check for new firmware later; see the online *User Manual*).
4. If new firmware is available, click **Yes**, and the router will automatically upgrade itself with the latest firmware.

 Do not try to go online, turn off the router, shut down the computer, or do anything else to the router until the router finishes restarting! When the Ready light stops blinking, wait a few seconds more before using the router.

- From the main menu, select **Setup Wizard**. The **Setup Wizard** screen displays.

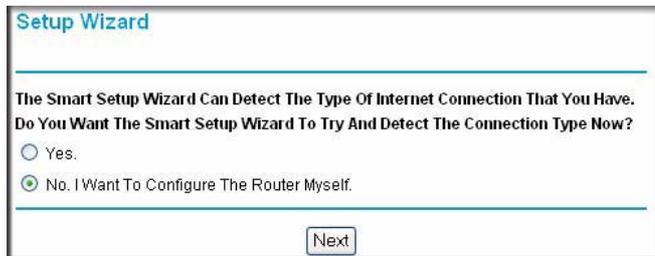


Figure 12

- Select **No** to set up the connection yourself. Click **Next** and the **Basic Settings** screen will display. Enter the required information for your ISP connection in the appropriate fields. If you need assistance, follow the **Basic Settings Help** screens on the router interface or see the online *User Manual* for this wireless router.



If you cannot connect to the wireless router, check the Internet Protocol (TCP/IP) properties in the Network Connections section of your Control Panel. It should be set to obtain *both* IP and DNS server addresses automatically. For assistance, see your computer documentation or see the links in [“Related Documents” on page 39](#).

- Click **Apply** to save your settings and complete your connection.

You are now connected to the Internet! The wireless router home page will display.

To complete your router setup and to configure your wireless network, see [“Accessing Your Router After Installation and Checking for New Firmware” on page 19](#) and [“Configuring Your Wireless Settings and Security Options” on page 21](#).

If you do not connect successfully:

- Review your settings and make sure that you have selected the correct options and typed everything correctly.
- Contact your ISP to verify that you have the correct configuration information.
- Read [“Troubleshooting” on page 25](#).

If problems persist, register your NETGEAR product and contact NETGEAR Technical Support.

Configuring Your Wireless Network for Internet Access

After installing your router, you must log into the router to complete your wireless setup. When you log in to the browser, you will be prompted to check for firmware updates from the NETGEAR update server.

Accessing Your Wireless Router after Installation and Checking for New Firmware

The Smart Wizard only appears when you first install the router or when the router is in its factory default state (for example, if you have reset the router to its factory default settings). If you want to change the settings after installing and configuring your router, you can use the desktop shortcut or an Internet browser to log in to the router.

- **Router login shortcut** . If you used the Smart Wizard to install your router, the wizard placed this icon on your desktop. Click it to view the router's main menu.¹
- **Internet browser.** Open a browser window and log in to the router. You will be prompted to check for new router firmware to the router.

To log in to the router after installation:

1. Open a browser window and type **<http://www.routerlogin.net>** in the address field of your browser. Press **Enter**.



You can enter either of these addresses to connect to your wireless router:
<http://www.routerlogin.net> or **<http://www.routerlogin.com>**.

1. The shortcut icon is installed on your desktop only when using the Smart Wizard installation method.

A login window similar to the one shown below displays.



Figure 13

2. When prompted, enter the default User Name and Password (**admin** for the router User Name and **password** for the router Password), both in lowercase letters. If you changed the User Name and Password from the defaults, then enter your new User Name and Password.



The router User Name and Password are unique to the router and are not the same as any other User Name or Password you might use to log in to your Internet connection.

The **Firmware Upgrade Assistant** screen displays.

3. Click **Yes** to check for new firmware (recommended). The router will automatically check the NETGEAR database for a new firmware image file. If no new firmware version is available, the message “No New Firmware Version Available” will display. (If you selected **No**, you can check for new firmware later; see [“Configuring Your Wireless Settings and Security Options” on page 19.](#))
4. If new firmware is available, click **Yes**, and the router will automatically upgrade itself with the latest firmware.



Do not try to go online, turn off the router, shut down the computer, or do anything else to the router until the router finishes restarting! When the Ready light stops blinking, wait a few seconds more before using the router.

Configuring Your Wireless Settings and Security Options

The wireless network settings of the router must match the wireless network settings of any wireless devices that connect wirelessly to the router (such as wireless adapter cards and wireless computers).

For a wireless connection, the router and each wireless computer must use the same SSID, also called the wireless network name, and the same wireless security. NETGEAR strongly recommends that you use wireless security.



Indoors, computers can connect over wireless networks at a range of several hundred feet. Such distances can allow for others outside of your immediate area to access your network.

The Wireless Settings screen lets you set your wireless network connections and the wireless security option for your network and router. To configure the wireless network, you can either manually specify your network name (SSID) and your wireless security settings (see [“Setting Your SSID and Wireless Security Manually”](#)) or, if the clients in your network are WPS capable, you can use Wi-Fi Protected Setup (WPS) to automatically set the SSID and implement WPA/WPA2 security on both the router and the client device (see [“Using Push 'N' Connect \(WPS\) to Configure Your Wireless Network”](#) on page 21).



If you configure the router from a wireless computer and you change the router's SSID, channel, or security settings, you will lose your wireless connection when you click **Apply**. You must then change your computer's wireless settings to match the router's new settings. To avoid this situation, you can use a computer that is connected to the router with an Ethernet cable.

For a complete overview of all the security configurations that can be implemented on this router, see the online User Manual. A link to the User Manual is on the *Resource CD*.

Setting Your SSID and Wireless Security Manually

To specify the wireless settings, you must know the following:

- Name (SSID). The default is **NETGEAR**.

Indoors, computers can connect over wireless networks at a range of several hundred feet. This can allow others outside of your immediate area to access your network.

- Wireless security option. NETGEAR strongly recommends that you use wireless security. To successfully implement wireless security, check each wireless adapter to determine which wireless security option it supports.

To set up basic wireless connectivity on your router:

1. Log in to the wireless router at its default LAN address of **http://192.168.1.1** with the default user name of **admin** and default password of **password**, or using whatever LAN address and password you have set up.
2. Select **Wireless Settings** under Setup in the main menu to display the Wireless Settings screen.



The SSID of any wireless adapters must match the SSID you configure in the wireless router. If they do not match, you will not get a wireless connection.

3. Select the region in which the wireless interface will operate.
4. Click **Apply** to save your changes.



If you are configuring the router from a wireless computer and you change the router's SSID, channel, or security settings, you will lose your wireless connection when you click **Apply**. You must then change the wireless settings of your computer to match the router's new settings.

To set up your computers for wireless connectivity:

1. Program the wireless settings of each computer or wireless adapter to have the same SSID (wireless network name) as the router.
2. Check that the wireless adapter on each computer can support the mode and security option that you selected. (If you have a question, see the online *User Manual* or review the settings you selected in “[Configuring Your Wireless Settings and Security Options](#)” on page 19).
3. Check that the security settings on each wireless device match the security settings of the router. For example, if you selected a security option requiring a passphrase, then the same passphrase must be used for each wireless computer.

4. Check that each wireless computer has a wireless link and is able to obtain an IP address by DHCP from the router.



For a Windows PC, go to the Control Panel and select Network Connections. Check the Wireless Connections Properties and ensure that TCP/IP Properties are set to Obtain an IP address automatically.

To access the Internet from any computer connected to your wireless router, launch a browser such as Microsoft Internet Explorer or Netscape Navigator. You should see the wireless router's Internet LED blink, indicating communication to the ISP.

Using Push 'N' Connect (WPS) to Configure Your Wireless Network

If your wireless clients support Wi-Fi Protected Setup (WPS), you can use this feature to configure the router's SSID and security settings and, at the same time, connect the wireless client securely and easily to the router. Look for the  symbol on your client device.¹ WPS automatically configures the SSID and wireless security settings for the router (if the router is in its default state) and broadcasts these settings to the wireless client



NETGEAR's Push 'N' Connect feature is based on the Wi-Fi Protected Setup (WPS) standard. All other Wi-Fi-certified and WPS-capable products should be compatible with NETGEAR products that implement Push 'N' Connect.

If the router has already been configured manually, and either WPS-PSK or WPA2-PSK security has been enabled, a wireless client can be connected quickly and simply by using the WPS method of connecting to the wireless network. In this case, the existing wireless settings are broadcast to the WPS-capable client. (For more information on setting up a mixed network, see the online *User Manual*. A link to the *User Manual* is on the *Resource CD*.)



If you choose to use WPS, the only security methods supported are WPA-PSK and WPA2-PSK. WEP security is not supported by WPS.

These instructions assume that you are configuring WPS on the router for the first time and connecting a WPS-capable device.

1. For a list of other Wi-Fi-certified products available from NETGEAR, go to <http://www.wi-fi.org>.

To connect to another device using WPS:

1. Open the networking utility of the device you want to connect to that supports WPS.
2. Push the wireless router's push-button for 5 seconds, then release. The push-button light starts to blink.

While the router is in WPS enable mode (a maximum of 2 minutes), wireless security is not enabled.



Indoors, computers can connect over wireless networks at a range of several hundred feet. Unlike wired network data, your wireless data transmissions can extend beyond your walls, and anyone with a compatible adapter can receive them, allowing others outside your immediate area to access your network.

3. While the push-button light is blinking, you have 2 minutes to enable WPS on the device you are trying to connect with the router. The blinking ceases when one of these two conditions occurs:
 - WPS has enabled security between the router and the other device. The router has generated an SSID, implemented WPA/WPA2 wireless security (including a PSK security password) on the router and has sent this configuration to the wireless client.
 - The 2-minute window period expires for establishing a connection using WPS. Whether or not a connection is established, your router security and SSID (wireless network name) are now configured for WPA/WPA2 security

The push-button remains lit to show you have enabled WPS security.

4. Note the new SSID and WPA/WPA2 password for the wireless network.

To access the Internet from any computer connected to your wireless router, launch a browser such as Microsoft Internet Explorer or Netscape Navigator. You should see the wireless router's Internet LED blink, indicating communication to the ISP.



If you are planning a mixed network of WPS capable devices and non-WPS capable devices, NETGEAR suggests that you set up your wireless network and security settings manually first, and use WPS only for adding additional WPS capable devices.

For more information about setting up your wireless network and configuring your wireless security settings, see the User Manual. A link to the online User Manual is on your *Resource CD*.



If you want to disable WPS, you must reset your router to its factory default settings. For information about resetting to the default settings, see [“Restoring the Default Password and Configuration”](#) on page 36.

Testing Basic Wireless Connectivity

Once you have established basic wireless connectivity and enabled security settings appropriate to your needs, you can test connectivity between devices connected to your router.

To test basic wireless connectivity:

1. Log in to the wireless router at its default LAN address of **http://192.168.0.1** with its default user name of **admin** and default password of **password**, or using whatever LAN address and password you have set up.
2. Select **Wireless Settings** in the main menu of the wireless router.
3. Note your SSID name. If you used WPS to establish a connection with other devices, the SSID will now be a randomly selected name.



The SSID of any wireless adapters or wireless devices connected to your router must match the SSID you configured in the wireless router. If they do not match, you will not get a wireless connection.

4. Make sure that you have selected the region in which the wireless router will operate.
5. Check your wireless security. If you used WPS to enable wireless security, your security will be set to WPA/WPA2 with a randomly-selected PSK security password.
6. Click **Apply** to save any changes.



If you are configuring the router from a wireless computer and you change the router's SSID, channel, or security settings, you will lose your wireless connection when you click **Apply**. You must then change the wireless settings of your computer to match the router's new settings.

7. Configure and test your computers for wireless connectivity.

Program the wireless adapter of your computers to have the same wireless network name (SSID) as the wireless router and the same wireless security as your wireless router. Check that they have a wireless link and are able to obtain an IP address by DHCP from the router.

Your wireless router is now configured to provide Internet access for your network. Your wireless router automatically connects to the Internet when one of your computers requires access. It is not necessary to run a dialer or login application such as Dial-Up Networking or Enternet to connect, log in, or disconnect. These functions are performed automatically by the wireless router as needed.

To access the Internet from any computer connected to your wireless router, launch a browser such as Microsoft Internet Explorer or Mozilla Firefox. You should see the wireless router's Internet LED blink, indicating communication to the ISP. The browser should begin to display a Web page.

Troubleshooting

This chapter gives information about troubleshooting your wireless router. You can find help with the following problems:

- [“Basic Setup Checklist”](#)
- [“Checking Basic Router Functions” on page 26](#)
- [“Troubleshooting Login Problems” on page 28](#)
- [“Checking the Internet Service Connection” on page 29](#)
- [“Obtaining an Internet IP Address” on page 30](#)
- [“Troubleshooting Connectivity Using the Ping Utility” on page 31](#)

Basic Setup Checklist

The following items are the most common errors made when initially setting up a router. Carefully review the checklist to make sure that you have followed the recommended procedures.

Be sure you always start your network in this sequence:

1. Turn off and unplug the modem from the power outlet. Next, turn off the wireless router and computer.
2. Turn on the modem and wait 2 minutes.
3. Turn on the wireless router and wait 1 minute.
4. Turn on the computer.

Make sure the Ethernet cables are securely plugged in.

1. Verify that the Internet status light on the wireless router is lit if the Ethernet cable to the wireless router from the modem is plugged in securely and the modem and wireless router are both turned on (see [“Front Panel” on page 3](#)).
2. For each powered-on computer connected to the wireless router with a securely plugged-in Ethernet cable, the corresponding wireless router LAN port status light will be lit. The label on the back of the wireless router identifies the number of each LAN port (see [“Router Label” on page 4](#)).

Make sure the network settings of the computer are correct:

1. Verify that your LAN-connected computers are configured to obtain an IP address automatically through DHCP. For help with this, see the documentation for your computer or [“Related Documents” on page 39](#).
2. Verify whether the MAC address is needed. Some cable modem services require you to use the MAC address of the computer registered on the account. If this is the case, in the Router MAC Address section of the Basic Settings screen, select **Use this Computer’s MAC Address**. To save your settings, click **Apply**. Restart the network in the correct sequence.

Check the router status lights to verify correct router operation:

If the Power light does not turn solid green within 2 minutes after turning the router on, reset the router according to the instructions in [“Restoring the Default Password and Configuration” on page 36](#).

Checking Basic Router Functions

After you turn on power to the router, check that the following sequence of events has occurred:

1. When power is first applied, verify that the power light is on (see [“Front Panel” on page 3](#) for an illustration).
2. Verify that the power light turns amber within a few seconds, indicating that the self-test procedure is running.
3. After approximately 20 seconds, verify that:
 - a. The color of the power light changes to green.
 - b. The LAN port lights are lit for any local ports that are connected.

If a port’s light is lit, a link has been established to the connected device. If a LAN port is connected to a 100 Mbps device, verify that the port’s light is green. If the port is 10 Mbps, the light will be amber.
 - c. The Internet port is connected and its light is lit.
4. If you have enabled WPS security, verify that the push-button stops blinking and changes to green (otherwise the push-button light should be off).

If the correct behavior does not occur, check for a remedy from the following table.

Table 1. Troubleshooting LED Behavior

Problem	Recommended Action
Power light is off.	<p>See “Connecting Your Wireless Router” on page 9, and check the following:</p> <ul style="list-style-type: none"> • Make sure that the power cord is properly connected to your router and that the power adapter is properly connected to a functioning power outlet. • Check that you are using the power adapter supplied by NETGEAR for this product. <p>If the error persists, you have a hardware problem and should contact technical support.</p>
Power light stays amber.	<p>When the router is turned on, the Power light turns amber for about 20 seconds and then turns green. If the light does not turn green, the router has a problem. If the Power light is still amber 1 minute after turning on power to the router:</p> <ol style="list-style-type: none"> 1. Turn the power off and back on to see if the router recovers. 2. Clear the router’s configuration to factory defaults. This will set the router’s IP address to 192.168.1.1. This procedure is explained in “Restoring the Default Password and Configuration” on page 36. <p>If the error persists, you might have a hardware problem and should contact technical support.</p>
Power light blinks green slowly and continuously. The wireless router firmware is corrupted.	<p>Restore the wireless router firmware:</p> <ol style="list-style-type: none"> 1. Make sure that your PC is connected to your wireless router and the wireless router is powered on. 2. Insert the <i>Resource CD</i> that came with your router into your PC. The CD automatically starts and detects the language you are using on your PC. Select a different language option, if you prefer. If the CD does not automatically start, browse the CD and double-click . 3. From the CD menu, select Supporting Software, then Netgear Firmware Recovery Utility, and follow the prompts for the recovery process. 4. After firmware recovery is complete, follow the prompts to restore your configuration. <p>The firmware recovery utility places a <i>Netgear Router Recovery</i>  shortcut on the desktop.</p>

Table 1. Troubleshooting LED Behavior (continued)

<p>Internet light stays amber.</p>	<p>When the router is turned on, the Internet light turns amber for about 20 seconds and then turns green. If the light does not turn green, the router has a problem. If the Internet light is still amber 1 minute after turning on power to the router:</p> <ol style="list-style-type: none"> 1. The Internet is not accessible. Confirm that you have the correct internet setting. 2. Clear the router's configuration to factory defaults. This will set the router's IP address to 192.168.1.1. This procedure is explained in "Restoring the Default Password and Configuration" on page 36. 3. Turn the power off and back on to see if the router recovers.
<p>Internet or LAN port lights are off.</p>	<p>If either the LAN or Internet lights do not light when the Ethernet connection is made, check the following:</p> <ol style="list-style-type: none"> 1. Make sure that the Ethernet cable connections are secure at the router and at the computer. 2. Make sure that power is turned on to the connected computer. 3. Be sure you are using Ethernet cables like the cable that was supplied with the wireless router. <p>See "Connecting Your Wireless Router" on page 9 for instructions.</p>
<p>WPS push-button blinks amber after setting WPS security.</p>	<p>Check the following:</p> <ol style="list-style-type: none"> 1. Make sure that you are using the push-button and not the router's built-in registrar (see "Using Push 'N' Connect (WPS) to Configure Your Wireless Network" on page 21). 2. Check that PIN verification has succeeded for the WPS-enabled device you are connecting to the router. 3. Make sure you have not pushed the push-button after disabling the WPS function (you logged into the router and disabled this previously). 4. Check that the router is not in the temporary AP setup locked state (if you are using the wireless repeater function). <p>For more information about WPS security and advanced features, see the online <i>User Manual</i>.</p>

Troubleshooting Login Problems

If you are unable to log in to the wireless router, check the following:

- If you are using an Ethernet-connected computer, check the Ethernet connection between the computer and the router as described in ["Checking Basic Router Functions"](#) on page 26.

- Make sure you are using the correct login information. The factory default login name is **admin** and the password is **password**. Make sure that the Caps Lock is off when entering this information.
- Make sure your computer's IP address is on the same subnet as the router. If you are using the recommended addressing scheme, your computer's address should be in the range of 192.168.1.2 to 192.168.1.254. Refer to your computer's documentation or see [“Preparing a Computer for Network Access”](#) in [“Related Documents”](#) on page 39 for help with configuring your computer.



If your computer cannot reach a DHCP server, some operating systems will assign an IP address in the range 169.254.x.x. If your IP address is in this range, verify that you have a good connection from the computer to the router, then restart (reboot) your computer.

- If your router's IP address has been changed and you don't know the current IP address, reset the router's configuration to the factory defaults. This procedure will reset the router's IP address to 192.168.1.1 (see [“Restoring the Default Password and Configuration”](#) on page 36).
- Make sure your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click Refresh to be sure the Java applet is loaded. Try closing the browser and reopening it again.

Checking the Internet Service Connection

If your router is unable to access the Internet, check the Internet connection, and then check the wireless router.

- **Internet Connection.** The cable or DSL modem status lights indicate if the modem connection is successful or not. Check your modem documentation or call your Internet service provider for help with verifying that the modem has a successful connection.
- **Wireless Router Internet Light is Green or Blinking Green.** If your Internet light is green or blinking green, then you have a good Internet connection and your wiring is correct.
- **Wireless Router Internet Light Off.** If the Internet light is off, verify that the Ethernet cable is securely connected between the cable or DSL modem, and that both the modem and wireless router are turned on.

Obtaining an Internet IP Address

If your wireless router is unable to access the Internet, and your Internet light is amber, check the wireless router to see if it is able to get an Internet IP address from your service provider. Unless you have a static IP address, your wireless router automatically requests an IP address from your service provider.

To check the Internet IP address from the browser interface:

1. Log in to the wireless router.
2. Select the **Router Status** link under the **Maintenance** heading to check that an IP address is shown for the Internet Port. If 0.0.0.0 is shown, your wireless router has not obtained an IP address from your service provider.

If your router is unable to obtain an IP address from the your service provider, the problem might be one of the following:

- Your service provider might require a login. Ask your service provider whether they require a PPP over Ethernet (PPPoE) login.
- The service name, user name, and password might be set incorrectly. See [“Troubleshooting PPPoE” on page 30](#).
- Your service provider might check for your computer’s host name. Assign the computer host name of your ISP account to the wireless router on the Basic Settings screen.
- Your service provider allows only one Ethernet MAC address to connect to the Internet, and might check for your computer’s MAC address. In this case, do one of the following:
 - Inform your service provider that you have bought a new network device, and ask them to use the wireless router’s MAC address.
 - Configure your router to spoof your computer’s MAC address. This can be done in the Basic Settings screen. Refer to the online help, which you can access from the wireless router main menu.).

Troubleshooting PPPoE

To troubleshoot a PPPoE connection:

1. Log in to the wireless router.
2. Select **Router Status** under Maintenance on the main menu.

3. Click the **Connection Status button.**

If all of the steps indicate OK, then your PPPoE connection is up and working.

4. If any of the steps indicate Failed, you can attempt to reconnect by clicking **Connect. The wireless router will continue to attempt to connect indefinitely.**

If you cannot connect after several minutes, you might be using an incorrect service name, user name, or password. There also might be a provisioning problem with your ISP.



Unless you connect manually, the wireless router will not authenticate using PPPoE until data is transmitted to the network.

Troubleshooting Internet Browsing

If your wireless router can obtain an IP address but your computer is unable to load any web pages from the Internet, check the following:

- Your computer might not recognize any DNS server addresses.

A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically, your ISP will provide the addresses of one or two DNS servers for your use. If you entered a DNS address during the wireless router's configuration, restart your computer. Alternatively, you can configure your computer manually with a DNS address, as explained in the documentation for your computer.

- Your computer might not have the wireless router configured as its default gateway.

Reboot the computer and verify that the wireless router address (192.168.1.1) is listed by your computer as the default gateway address.



The factory default wireless router IP address is 192.168.1.1. However, if the router detects a conflict with the address it gets from your modem, it automatically picks a different address for itself. In this case, you can log in to the router using **www.routerlogin.net** to verify its LAN IP address. Select **LAN IP Setup** under **Advanced** on the main menu. Take note of the LAN TCP/IP setup IP address, which should match the default gateway IP address on your computer.

Troubleshooting Connectivity Using the Ping Utility

Most computers and routers have a diagnostic utility called *ping* that sends a request to a target device. The device then replies. The ping utility makes it easy to troubleshoot a network.

Testing the Path from Your PC to Your Router

You can ping the wireless router to verify that the LAN path from your computer to your router is set up correctly.

To ping the wireless router from a Windows PC:

1. From the Windows task bar, click **Start** and select **Run**.
2. In the field provided, type **ping** followed by the address of the router, as in this example:

```
ping www.routerlogin.net
```

3. Click **OK**. You should see a message like this one:

```
Pinging www.routerlogin.net with 32 bytes of data
```

If the path is working, you see this message:

```
Reply from www.routerlogin.net: bytes=32 time=NN ms TTL=xxx
```

If the path is not working, you see this message:

```
Request timed out
```

If the path is not working correctly, you could have one of the following problems:

- Wrong physical connections
 - Make sure the LAN port light is on. If the light is off, follow the instructions in [“Connecting Your Wireless Router” on page 9](#).
 - Check that the corresponding lights are on for your computer’s network interface card.
- Wrong network configuration
 - Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer.
 - Verify that the IP addresses for your router and your computer are correct and that both addresses are on the same subnet (for example, 192.168.1.x/255.255.255.0).

Testing the Path from a PC to the Internet

After verifying that the path between your computer and the wireless router works correctly, test the path from your PC to the Internet. From the Windows Start > Run... menu, type:

```
PING -n 10 <IP address>
```

where <IP address> is the IP address of a remote device such as your ISP’s DNS server.

If the path is functioning correctly, replies as in the previous section are displayed. If you do not receive replies:

- Check that your PC has the IP address of your router listed as the default gateway. If the IP configuration of your PC is assigned by DHCP, this information is not visible in your PC's Network Control Panel. Verify that the IP address of the router is listed as the TCP/IP default gateway.
- Check to see that the network address of your PC (the portion of the IP address specified by the netmask) is different from the network address of the remote device.
- If your ISP assigned a host name to your PC, enter that host name as the account name in the Basic Settings screen.

Default Configuration and Technical Specifications

Default Configuration Settings

Table 2. Wireless Router Default Configuration Settings

Feature	Default Setting
Smart Wizard	Disabled
Router Login	
Router Login URL	http://www.routerlogin.net; http://www.routerlogin.com; or http://192.168.1.1
Login Name (case sensitive)	admin
Login Password (case sensitive)	password
Internet Connection	
WAN MAC Address	Default hardware address (on label)
MTU Size	1500
Local Network	
Router Lan IP address (the Gateway IP address)	192.168.1.1
IP Subnet Mask	255.255.255.0
DHCP Server	Enabled
Time Zone	GMT
Time Zone Adjusted for Daylight Saving Time	Disabled
Firewall	
Inbound (communications coming in from the Internet)	Disabled (bars all unsolicited requests except for traffic on port 80, the http port)
Outbound (communications going out to the Internet)	Enabled (all)

Table 2. Wireless Router Default Configuration Settings (continued)

Feature	Default Setting
Wireless	
Wireless Communication	Enabled
SSID Name	NETGEAR
Security	Disabled
Broadcast SSID	Enabled
Transmission Speed	Auto ^a
Country/Region	United States (North America only; otherwise varies by country and region)
RF Channel	6 until region selected
Operating Mode	130 Mbps
Data Rate	Best
Output Power	Full

a. Maximum Wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead lower actual data throughput rate.

Restoring the Default Password and Configuration

You can restore the factory default configuration settings that reset the router's User Name to **admin**, the Password to **password**, and the IP address to **192.168.1.1**. This procedure erases your current configuration and restores the factory defaults.

To restore the factory default configuration settings:

1. Use a sharp object such as a pen or a paper clip to press and hold the Restore Factory Settings button, located on the rear panel of the router, for about 20 seconds, until the power light begins to blink (see [“Back Panel” on page 4](#)).
2. Release the Restore Factory Settings button and wait for the router to restart, and for the Power light to become solid green.

The factory default settings will be restored so that you can access the router from your web browser using the factory defaults.

Technical Specifications

Table 3. Wireless Router Technical Specifications

Network Protocol and Standards Compatibility		
	Data and Routing Protocols	TCP/IP, RIP-1, RIP-2, DHCP, PPPoE, PPTP, Bigpond, Dynamic DNS, and UPnP
Power Adapter		
	North America	120V, 60 Hz, input
	UK, Australia	240V, 50 Hz, input
	Europe	230V, 50 Hz, input
	Japan	100V, 50/60 Hz, input
	All regions (output)	12V DC @ 1.0A, output
Physical		
	Dimensions	8.9" x 6.8" x 1.5" (225.5 x 172 x 39 mm)
	Weight	1.2 lbs. (0.56 kg)
Environmental		
	Operating temperature	0° to 40° C (32° to 104° F)
	Operating humidity	90% maximum relative humidity, noncondensing
Electromagnetic Emissions		
	Designed to conform to the following standards	FCC Part 15 Class B EN 55022/24 (CISPR 22/24) Class B EN 60950 (CE LVD) Class B
Interface Specifications		
	LAN	10BASE-T, 100BASE-Tx, or 1000BASE-T, RJ-45
	WAN	10BASE-T, 100BASE-Tx, or 1000BASE-T, RJ-45

Related Documents

This section provides links to reference documents that you can use to gain a more complete understanding of the technologies used in your NETGEAR product.

Document	Link
Internet Networking and TCP/IP Addressing	http://documentation.netgear.com/reference/enu/tcpip/index.htm
Preparing a Computer for Network Access	http://documentation.netgear.com/reference/enu/wsdhcp/index.htm
Glossary	http://documentation.netgear.com/reference/enu/glossary/index.htm

Wireless Router Setup Manual

Registration and Certifications

Product Registration, Support, and Documentation

Register your product at <http://www.NETGEAR.com/register>. You must register before you can use our telephone support service. Product updates and Web support are always available by going to: <http://www.NETGEAR.com/support>.

Setup documentation is available on the CD, on the support website, and on the documentation website. When the wireless router is connected to the Internet, click the KnowledgeBase link to view support information or click the Documentation link to view the online *User Manual* for this wireless router.

Maximum Wireless Signal Rate Derived from IEEE Standard 802.11 Specifications

Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC Statement

This Class B digital apparatus complies with Canadian ICES-003. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Cet appareil numérique de la classe B conforme á la norme NMB-003 du Canada.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible. This device and its antenna (s) must not be co-located or operation in conjunction with any other antenna or transmitter. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropic ally radiated power (e.i.r.p) is not more than that permitted for successful communication.

USERS MANUAL OF THE END PRODUCT: In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX IC: 4054A-08300093 ".